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Publication Title:

Organic thin film transistor with enhanced carrier mobility

Abstract:

An organic thin film transistor including a gate (21, 31, 41, 51, 61, 71) on a layer of gate insulator material (22, 32, 42, 52, 62, 72), a source (25, 35, 45, 55, 65, 75) and a drain (26, 36, 46, 56, 66, 76) positioned in spaced apart relationship on a film (24, 34, 44, 54, 64, 74) of organic semiconductor material with uniaxially aligned molecules, the film (24, 34, 44, 54, 64, 74) of organic semiconductor material being positioned so that the molecules are aligned between the source (25, 35, 45, 55, 65, 75) and drain (26, 36, 46, 56, 66, 76) in a direction from the source (25, 35, 45, 55, 65, 75) to the drain (26, 36, 46, 56, 66, 76), and an orientation film (23, 32, 43, 52, 63, 73) positioned adjacent the film (24, 34, 44, 54, 64, 74) of organic semiconductor material so that molecular uniaxial alignment of the film (24, 34, 44, 54, 64, 74) of organic semiconductor material is achieved by the orientation film (23, 32, 43, 52, 63, 73).

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(54) Organic thin film transistor with enhanced carrier mobility

(57) An organic thin film transistor including a gate (21, 31, 41, 51, 61, 71) on a layer of gate insulator material (22, 32, 42, 52, 62, 72), a source (25, 35, 45, 55, 65, 75) and a drain (26, 36, 46, 56, 66, 76) positioned in spaced apart relationship on a film (24, 34, 44, 54, 64, 74) of organic semiconductor material with uniaxially aligned molecules, the film (24, 34, 44, 54, 64, 74) of organic semiconductor material being positioned so that the molecules are aligned between the source (25, 35, 45, 55, 65, 75) and drain (26, 36, 46, 56, 66, 76) in a direction from the source (25, 35, 45, 55, 65, 75) to the drain (26, 36, 46, 56, 66, 76), and an orientation film (23, 32, 43, 52, 63, 73) positioned adjacent the film (24, 34, 44, 54, 64, 74) of organic semiconductor material so that molecular uniaxial alignment of the film (24, 34, 44, 54, 64, 74) of organic semiconductor material is achieved by the orientation film (23, 32, 43, 52, 63, 73).

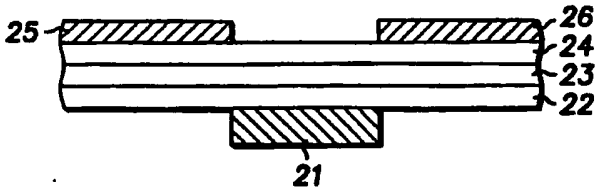

FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 97 10 1017

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 April 1998	Königstein, C

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EP 97 10 1017

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	HOLLAND E R ET AL: "Effects of order and disorder on field-effect mobilities measured in conjugated polymer thin-film transistors" JOURNAL OF APPLIED PHYSICS, 15 JUNE 1994, USA, vol. 75, no. 12, ISSN 0021-8979, pages 7954-7957, XP002055361		
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